Future Surveillance Systems--Requirements

- Requirements
  - Support 4D trajectory based separation
  - Support airborne self separation
  - Support national security requirements (conformance monitoring: non-cooperative targets; CONUS coverage)
  - Support of 3X NAS capacity
  - Gate to gate seamless coverage across all flight domains
  - Improved Weather surveillance
  - Support a mix of sensors and sources to provide a fused common air picture
  - Feed data to multiple users through publish/subscribe SDN
- Unmet Needs
  - Lower life cycle cost and improved RMA
  - Improved low altitude coverage
  - Less than 5 sec surveillance update rate in terminal area
  - Better use of overlap sensors
  - Wake vortex detection
  - Surveillance sufficient 4-6 Hr weather prediction

Future Surveillance Systems—R & D Topics

- Space based surveillance for non cooperative targets
- Next generation of collision avoidance systems
- Model for 2020 traffic density, mix and separation requirements for all domains
- Define the role of the NAS in future air security
- Use of airborne platform as meteorology probe
- Wake Vortex detection and prediction
- Secure ADS-B
- Ability to fuse disparate sources with integrity monitoring

Future Surveillance Systems -- Other Issues

- Security implications of emerging CNS technologies and applications
  - Privacy, military freedom of movement
    - Anonymous/secure ADS-B
  - Securing surveillance network
- Policy and regulatory implications
  - Evaluate TIFR's, etc)
  - Who pays for equipage, etc?
  - What is a common …? Revisit redundancy of CNS avionics/technology
- Equipage costs and benefits
  - Define benefits?
  - Limited mandates
  - What do I buy to be compliant? Need a path for "Well Dressed Cockpit"
  - Least expense equals more implementation
    - Leverage technology for low cost
- CNS firewalls